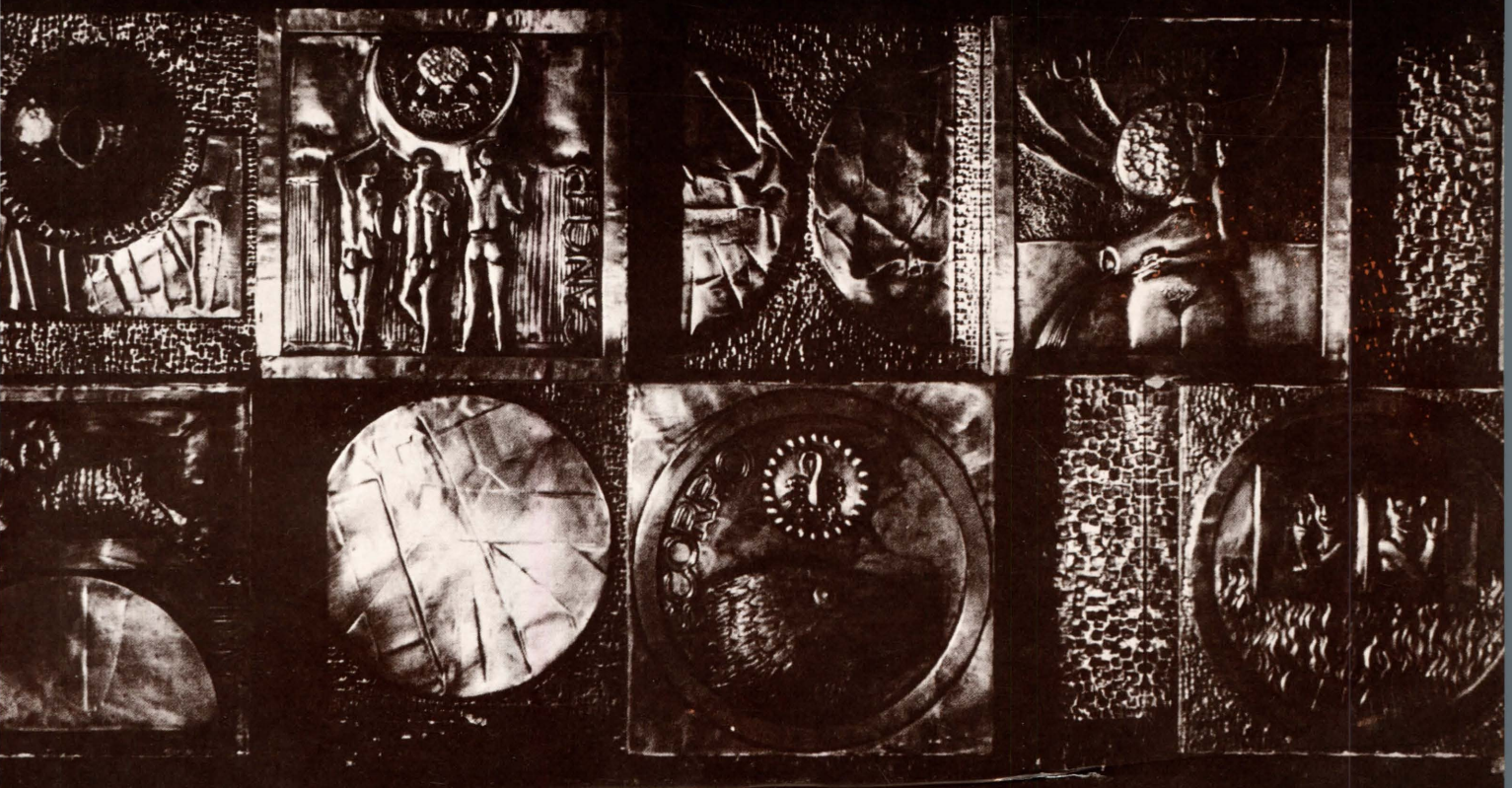
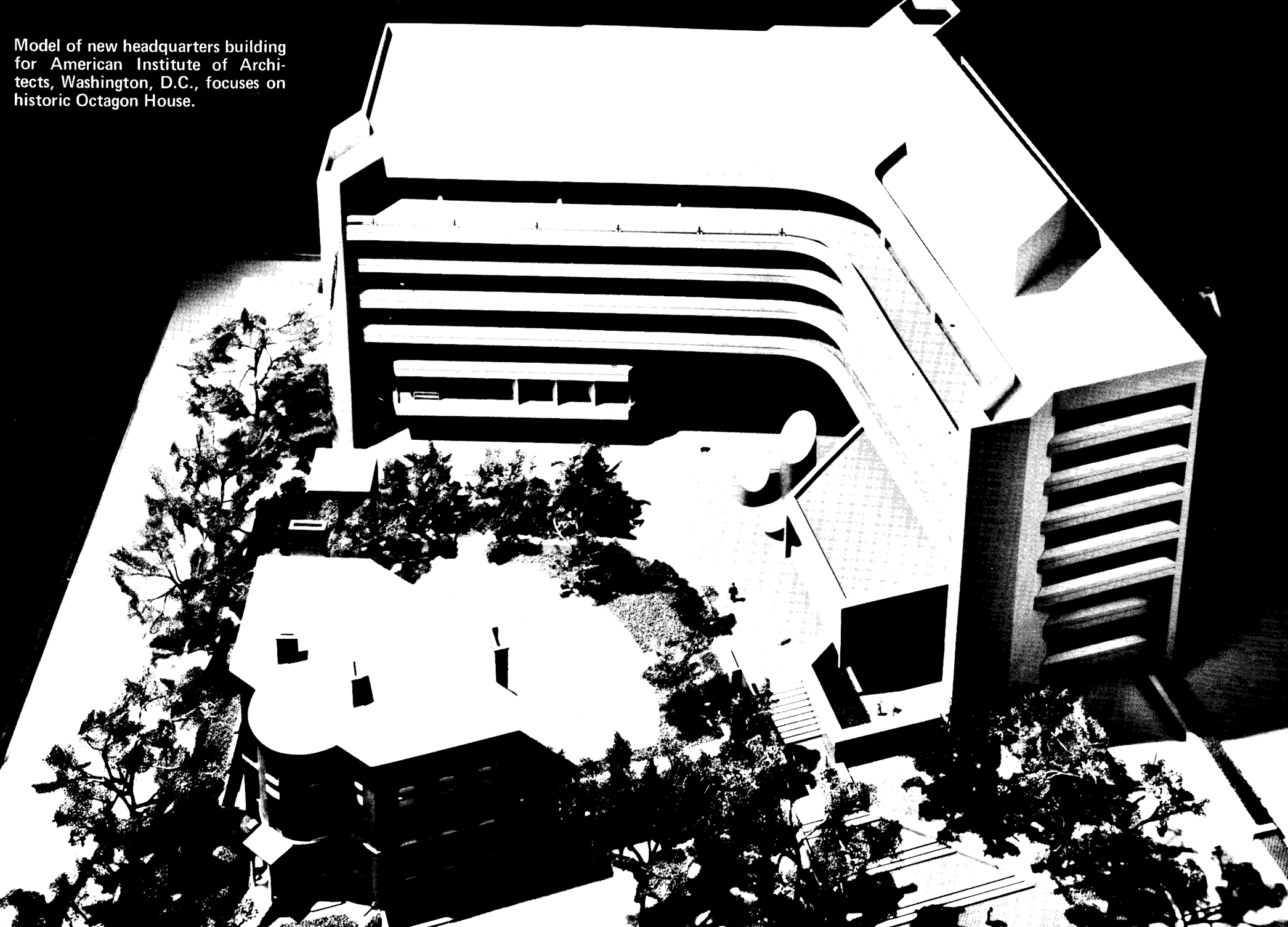


# The Florida Architect

March
April
1973



Model of new headquarters building for American Institute of Architects, Washington, D.C., focuses on historic Octagon House.

COVER: Individually designed murals which combine traditional methods with modern techniques. These murals are ideally suited for lobbies and executive offices, and are created from hammered and enamelled metals, primarily different gauges of copper, which are backed with liquid metal to give maximum strength and durability. This method reproduces the quality, but not the weight of casting. The surfaces are enriched and made colorful with various patinas. The completed mural is protected with a permanent clear coating which prevents oxidization. Laszlo Buday designer-craftsman, 33 Avenue Rd., Toronto 5, Ontario, Tel: (416) 924-7056



2/73 Volume 23 Number 2

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# The Florida Architect March April

THE FLORIDA ARCHITECT, Official Journal of the Florida Association of the American Institute of Architects, Inc., is owned and published by the Association, a Florida Corporation not for profit. It is published bi-monthly at the Executive Office of the Association, 7100 N. Kendall Drive, Miami, Florida 33156. Telephone: 661-8947 (area code 305). Opinions expressed by contributors are not necessarily those of the Editor or the Florida Association of the AIA. Editorial material may be reprinted provided full credit is given to the author and to THE FLORIDA ARCHITECT and copy is sent to publisher's office. Controlled circulation postage paid at Miami, Florida. Single Copies, 75 cents, subscription, $6.50 per year.

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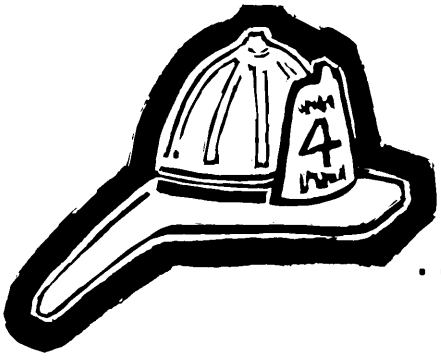


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For the first time, the architectural exhibit at a national conference on religion and architecture will include projects sponsored by the religious community as well as those designed for religious purposes. In addition to new designs of churches, temples and synagogues, the architectural exhibit at the National Interfaith Conference on Religion and Architecture, scheduled for June 4-6, 1973, Minneapolis, Minn. will display educational facilities, retirement centers, housing for the elderly, etc. developed and financed by a religious organization. Included in the exhibit will be both new and remodeled facilities.

The theme of the National Interfaith Conference is "Community, Celebration and Our World." Convened by the Interfaith Research Center – whose member organizations include the Guild for Religious Architecture, affiliate of The American Institute of Architects, the Liturgical Conference, the National Council of Churches of Christ, USA and the Union of American Hebrew Congregation – the Minneapolis meeting will focus on the religious experience in today's world. It will include trips to St. John's Abbey at Collegeville, Minn., the new town of Jonathan as well as the new town-in-town of Cedar-Riverside. The formal presentation will be by eminent leaders in the fields of religion and architecture, with ample time provided for discussion.

All registered architects are invited to participate in the architectural exhibit, which will be judged and Honor Award Certificates given for the most meritorious work. The jury for the architectural exhibit is traditionally made up of architects and clergymen whose knowledge and experience in the field have been established. Chairman for this year's architectural exhibit is Lloyd F. Bergquist, AIA, GRA, of the firm of Bergstedt, Wahlberg, Bergquist Associates, St. Paul, Minn. The general chairman for the Minneapolis Conference is Nils M. Schweizer, FAIA, GRA, Chairman of the Board, Environmental Design Group Inc., Winter Park, Fla. John W. Anderson, AIA, GRA, *Dimensional Dynamics*, Valley Forge, Pa. is Program Chairman, and Frederick J. Bentz, FAIA, GRA, Bentz/Thompson Associates, Minneapolis, Minn. is local conference coordinator.

Architectural exhibit brochures, detailing rules of submission, dates of entry, etc. are available upon request.

Write: 1973 Minneapolis Conference
Guild for Religious Architecture
1777 Church St., N.W.
Washington, D.C. 20036

## THE NATIONAL INTERFAITH CONFERENCE ON RELIGION AND ARCHITECTURE


**Nils M. Schweizer, FAIA**
**CONFERENCE CHAIRMAN**

Community, Celebration and Our World is the theme of the National Interfaith Conference on Religion and Architecture to be held in Minneapolis, Minn., June 4-6, 1973. The Conference is being convened by the Interfaith Research Center, whose sponsoring organizations include the Guild for Religious Architecture, affiliate of The American Institute of Architects, the Liturgical Conference, the National Council of Churches of Christ, USA and the Union of American Hebrew Congregations. For more than thirty years, annual conferences on religious architecture have been held under various auspices. This year's conference represents a joint effort by the organizations involved in the Interfaith Research Center to provide an interfaith, interdenominational and interdisciplinary program of significance to the professional and religious communities.

The basic theme of the 1973 Mineapolis Conference deals with the religious experience in today's world. Topics for discussion include: "The Urban Religious Community" – "The Celebration of Life in the World" – "The Cultic Experience in the World" "Worship in the New Communities." These will be developed by eminent leaders in the fields of religion and architecture, with ample opportunity for dialogue and discussion.

The program will include a visit to St. John's Abbey at Collegeville, Minn. (designed by Marcel Breuer) for a Conference session; a tour of the new town of Jonathan; a session at the new town-in town of Cedars-Riverside, as well as a reception at the Crystal Court of the new IDS building in Minneapolis designed by Philip Johnson. In addition, there will be architectural, religious arts, products and crafts exhibits to offer Conference participants an over-view of current trends in design and equipment.

For further information on Conference registration and room reservation at the Hotel Radisson South, write:
1973 Minneapolis Conference
Guild for Religious Architecture
1777 Church St., N.W.
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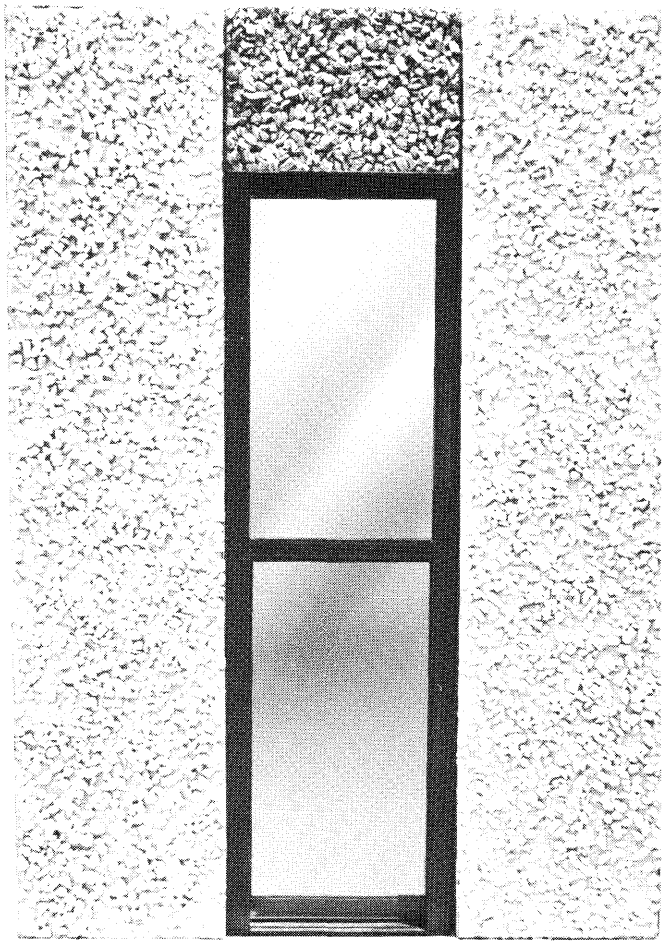
# Stress without strain in a complete wall system.



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# Harry T. Gray Honored

Architect Harry Burns, left, President of the State Board of Architecture, presents engraved silver pitcher to Attorney Harry Gray, right. Attorney James Rinaman, center, Master of Ceremonies at the banquet, looks on.

Attorney Harry T. Gray of the Jacksonville Law Firm of Marks, Gray, Conroy and Gibbs was honored last week by the Florida State Board of Architecture at its annual meeting in the Gulf Life Tower in Jacksonville.

Mr. Gray was recognized for fifty years of service as legal counsel for the Board.

At a banquet in the University Club attended by thirty-two architects who had served on the Board of Architecture from 1915 to the present, Mr. Gray was given an engraved sterling silver pitcher by Board President Harry Burns. Special guests included the dean of Florida Architects, Mr. Mellen C. Greeley of Jacksonville who served as secretary for the State Board at the time of its ratification by the State Legislature in 1915; Mr. Louis H. Ritter of Tallahassee, Secretary of the Department of Professional and Occupational Regulation; and Mr. Thomas Daniels of Panama City, President of the Florida Association of Architects. Architectural guests and their wives were in attendance from seventeen different cities.

All in attendance made comments of appreciation to Mr. Gray for his service to the architectural profession in the State of Florida.

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# INTERVIEW
# Dr. William B. Feild

Four years ago Dr. William Feild gave a series of lectures for various chapters of the FAAIA outlining the Genesis and general evolution of open-space elementary schools in Florida. Since that time Bill has become a full-time private consultant in the field and has been working with Architects in Florida, across the United States, and in the Bahamas and Mexico. We found it interesting that an educational planner could exist economically outside the educational community and we pursued the subject with him.

**The Florida Architect: Bill, what kinds of services have you gotten into since we last saw you? That is, who are your clients now?**

**Feild:** Many school systems hire me for specialized services in a number of different areas and I do a considerable amount of work for the education oriented foundations like Kettering, Ford, Mott and the like. Then frequently I will work with architects who have or are seeking school facilities jobs.

**The Florida Architect: Bill, why would an architect contact you for services?**

**Feild:** Well, you see, the day of standard programs for large institutions such as schools, hospitals, special industries, etc., has given in to the tailor-made requirements made necessary by the rapid change being experienced by these institutions. As a direct result of this architects frequently find themselves in the awkward position of having such clients request modern space concepts in design to satisfy program concepts about which the clients themselves have little or no knowledge. Many times the architect not only needs good programming but needs someone to educate the client as the design process proceeds. With me on his team he can avoid the tedious drawredraw process which frequently results from poor programming in school work.

**The Florida Architect: Why would a school client make such request of the architect in the first place? Where do they get the ideas?**

**Feild:** From the professional journals and from convention speeches and the like. Actually, they are bombarded constantly with terms like individualized instruction, team teaching, continuous progress, open space, and very few of them understand what these terms involve operationally. Their assumption is that, if "X" schools has space like the famous "Y" school, then "X" school will be able to run the same kind of program.

**The Florida Architect: And become famous, too?**

**Feild:** Something like that. No, they are generally more sincere than that. The problem is that most school administrators have not been through the process of developing a program, designing supporting space, and then solving all the human and technical problems inherent in making new programs work. Many new schools fail for this reason. For a long time it was only in the elementary schools where innovation was taking place in architecturally significant terms, but now such innovation can be found in the new open-space high schools and interdisciplinary community colleges and universities. Also, the private schools are making a serious effort to upgrade and keep up with the technology.

**The Florida Architect: Do school systems become reactionary when they see sister schools designing modern buildings and upgrading programs?**

**Feild:** Yes, unfortunately they do, a many of them build space they cann use, simply because they do not want appear backward or out of date.

**The Florida Architect: Why would an archit turn to you rather than to someone in t system for help?**

**Feild:** Well, partly for the reason ju defined, and partly because with r experience with dozens of new schools the United States and abroad, I can oft the client program alternatives whi match his real commitment and his re ability to support the program . . .

**The Florida Architect: Pardon me for int rupting, but how do you discover what t school system's real commitment is and ability to perform?**

**Feild:** One of my specialties is the abili to analyze the operational requiremer and outcomes of complex educatior programs. I get in writing what the clie really wants, what he is willing to chan beside the building or space, and wheth he has the manpower, budget or equ ment to support what he wants ul mately. We can go so far as to condu comprehensive or specific educatior surveys, assist in or perform site selectio develop educational specifications, retra administrators and staffs to operate ne programs and help them develop ne materials and curriculum.

**The Florida Architect: How among all the systems elements does the architect use yo services?**

**Feild:** In all these ways I've ju mentioned. But primarily he wants me develop a good set of educational spe fications and to assist with the interfa

between them and his emerging design. And he wants to know that his design supports (and that the client understands and can support) the other systems elements such as scheduling, organization, administration, support services, and equipment and materials which are vital to the success of the program and the building. I can do this in such a way as to avoid the constant re-doing of plans and the interminable conferences which the process requires without good, professional interface.

Secondly, he can take me into his interviews with the prospective client as an assist to him in getting the job. That is, he can sell my expertise to the system and boost the credibility of his firm at the same time. You see, some large firms actually have in-house, or on-retainer, educational consultants for this very purpose.

**The Florida Architect: You say you do very little advertising except through us. How do architects become aware of your services generally?**

**Feild:** Sometimes through Harold Gores at EFL in New York, or through John Bahner at /I/D/E/A/ in Dayton, Ohio, or through client recommendation . . . word of mouth kind of thing. Also, I run many staff development programs around the country as the co-director of the national UNIPAC exchange. Sometimes it is a natural, when I assist a district in developing a new program and help them get it into operation, that they recommend me when they get around to building space for it. I do a lot of repeat business.

**The Florida Architect: Bill, this has been a most interesting conversation, and I am sure that many of our readers will find this interview interesting. Thanks for your time.**

**A statement by Louis de Moll, FAIA Vice President, The American Institute of Architects to the Subcommittee on Public Buildings and Grounds Committee of Public Works, United States Senate, Washington, D.C.**

# USE OF THE SIMULTANEOUS CONSTRUCTION PROCESS

Mr. Chairman and members of the Committee. I am Louis de Moll, FAIA, Vice President of The American Institute of Architects and partner in charge of design for the Ballinger Company of Philadelphia, Pennsylvania.

Today The American Institute of Architects, a national professional society representing 24,000 licensed architects, wishes to express its views on the approach and management methods being employed to design, develop, and construct three proposed Social Security Administration Payment Centers located in San Francisco, Philadelphia, and Chicago.

Traditionally, buildings for the Federal Government have been created using a linear sequence of decision-making, design, and delivery. In today's rapidly escalating economy, this frequently long linear approach increases the time between authorization and occupancy of the needed facility. A constant increase in the cost of construction due to inflation, along with demands on the Federal dollar and a demonstrated need for the space, has placed Federal construction agencies under considerable pressure to produce high quality buildings within a limited budget and an accelerated time frame.

Therefore, The American Institute of Architects strongly supports the General Services Administration and the Department of Health, Education and Welfare in their efforts to utilize the simultaneous process of facility development.

CONTINUED

## SIMULTANEOUS CONSTRUCTION PROCESS
## Continued

In the simultaneous building approach, the architect-engineer and the construction manager, acting as agents of the owner, join the owner to form a team. The A-E and the construction manager bring their expertise to bear on the owner's problems at stages where it is most relevant, and the owner himself maintains control and plays an important part in all the decision making. This is not the case with other innovative types of building contracts, such as turnkey, one-step or two-step building procurement. In these instances, the owner has often been required to relinquish major control of decisions affecting quality. He knows precisely what he is going to pay, but he does not know with any precision what he will receive for his money. We consider such loss of control to be undesirable for both the owner and the taxpayers.

We would like to discuss three aspects of the simultaneous approach to construction: construction management, systems building, and life cycle costing.

The construction management technique is a management tool which provides construction expertise from the earliest decision-making stages. Construction methods and cost control decisions are reached concurrently with the development of the design concept. A construction management firm may be responsible for assisting in cost estimating and budget controls; review of design during its development; critical path method scheduling, including phased construction scheduling and pre-purchase of critical equipment and materials; advice on developing a schedule for decision, design, and delivery; advice on methods of obtaining system and subsystem manufacturers and prime contractors; recommendations for the award of multiple construction contracts on the basis of competitive bidding; and the coordination and direction of all construction activities for the owner.

The second aspect of the simultaneous approach to construction is the utilization of systems building. A building system is the combination of prefabricated assemblies, components and parts into a single, integrated unit using industrialized production, assembly and methods. This is not a new concept, but has not been extensively used in this country. One of its most important prerequisites is an aggregation of markets, which has frequently been overlooked in the formulation of programs planned to demonstrate the usefulness of building systems.

The use of systems building requires a large enough project, in dollar size, to attract serious interest on the part of U.S. manufacturers and suppliers. Because of the interface problems among components of different manufacturers and the requirements of performance specifications, an inducement in the form of a substantial contract is necessary to encourage competition among offerors to meet the systems requirements of the project.

The architect-engineer works with and defines for the owner the performance levels required for the different building systems of the proposed facility, and also meets with the manufacturers and contractors who will be responsible for the design, construction, and installation of the system components. The role of the A-E as part of the team does not stop with the writing of the performance specification. He continues to assist the owner in further defining with the interested system proposers the objectives of the system; assists in evaluating the proposals submitted; and aids the owner in awarding the systems contract.

The SSA Payment Centers have broken the systems contract down into seven distinct systems. These are identified as: structure, HVC, electrical distribution, lighting, finished floors and ceilings, and partitions. Each of these systems will be contained in all three buildings. Each building is being designed by a separate A-E firm under the leadership of an executive A-E.

Designers of the buildings have been permitted considerable freedom within the limits established by GSA and the executive A-E team. Under these reasonable restraints, the architect-designers of the three structures have been able to develop strikingly different designs, while at the same time taking advantage of the cost savings offered by utilizing these same seven systems throughout their buildings.

The third aspect of the simultaneous process of facility construction is life cycle costing, which, although very complex, may be simply described as the consideration of all cost implications of a facility over its useful or expected life. These total implications include cost, time, function and quality, giving each of these its proper priorities. Life cycle costing recognizes that the construction cost is exceeded by the operating and maintenance costs of the building in from one to five years, depending upon the building type. Another consideration includes the cost of the denial of use of the facility from the time its need is recognized to the time the facility is occupied by its users. Prior to assigning priorities, the team must identify the needs the facility is meant to serve and what quality criteria will meet these conditions.

These facts make it critical that the lowest initial cost not be the determining factor in the award of a contract. Rather what must be considered is the total life cycle cost of a facility and its value analysis approach to problem solving.

Value analysis is, and must be, a part of each phase of the design and construction process, including incentive contracting with the owner, A-E, and construction manager involved in making the decisions. Incentive contracting, as presently used by most Federal agencies, applies value engineering after the fact, without benefit or advice of the design team. We do not believe that incentive contracting – value engineering is capable of giving the taxpayer the full benefits of a value analysis methodology if used in this manner.

A team selected to design and construct a facility using the simultaneous approach must be composed of highly skilled professionals, chosen on the basis of their competence, qualifications, and compatability. We believe the team selected by GSA in conjunction with the Department of HEW, meets these high standards. We commend these agencies for putting together this innovative approach in developing the SSA Payment Centers. Quite often it is easier to do it the same old way. GSA and HEW should be recognized as leaders in this country for trying to develop the tools to provide the taxpayers with better government services. We have not followed in detail the progress of this experiment, but we wholeheartedly support this design and construction concept.

Thank you for this opportunity to discuss the use of the simultaneous construction process and its broad application on the project for the Federal Government. We would be pleased to answer any questions you may have concerning our statement.

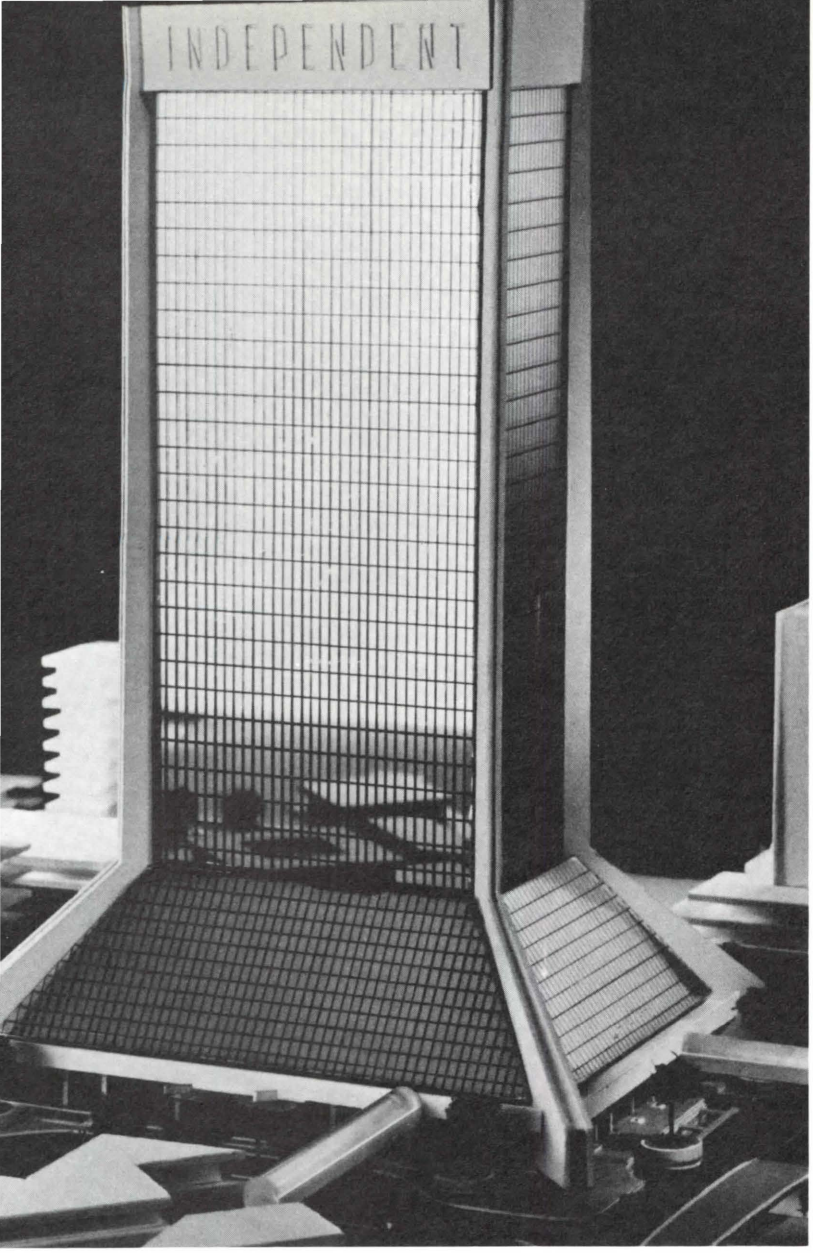
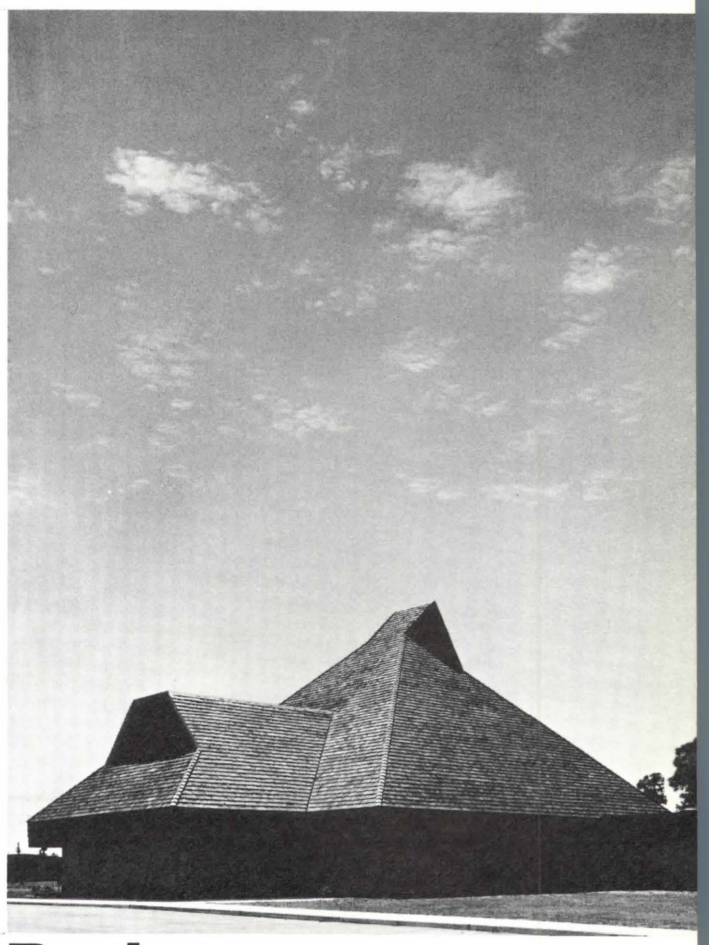



Photo of model shows how Independent Square, new 37-story home offices of the Independent Life and Accident Insurance Company, will look when it is completed in 1974. Architects: Kemp, Bunch and Jackson.

"The Halleluah Church." A new nave and sanctuary for St. Richards Episcopal Church, Winter Park, Photo: Robert Duncan Braun.
**Architect: Schweizer Associates, Inc.**



# Projects

Entry in the International Competition for a new cutural center in Paris by the office of West and Conyers / Architects & Engineers, Satasota.


# The Jetport Commerce Park needed flexible climate control.

"Because of diverse tenant needs.

"And TECO provided that flexibility with climate controlled electric heating," J. D. Sellers, vice-president of D.S.J. Developments, Inc., said.

"The Jetport Commerce Park, adjoining Tampa International Airport, is our first multi-tenant industrial park in this area. We have projects in the Orlando and Jacksonville area, as well.

"We build for the light manufacturing, warehousing and distribution needs of companies whose limited space requirements have kept them from enjoying the advantages of the single-occupant industrial park.

"At the Jetport Commerce Park we will have a number of buildings which will collectively provide 500,000 square feet of space. Two buildings are completed now...and have been divided into units of approximately 2,000 square feet. Each unit has its own basic climate control package which, since it's electric, can be increased to meet the needs of the tenant — from high-ceiling warehouse to partitioned office space.

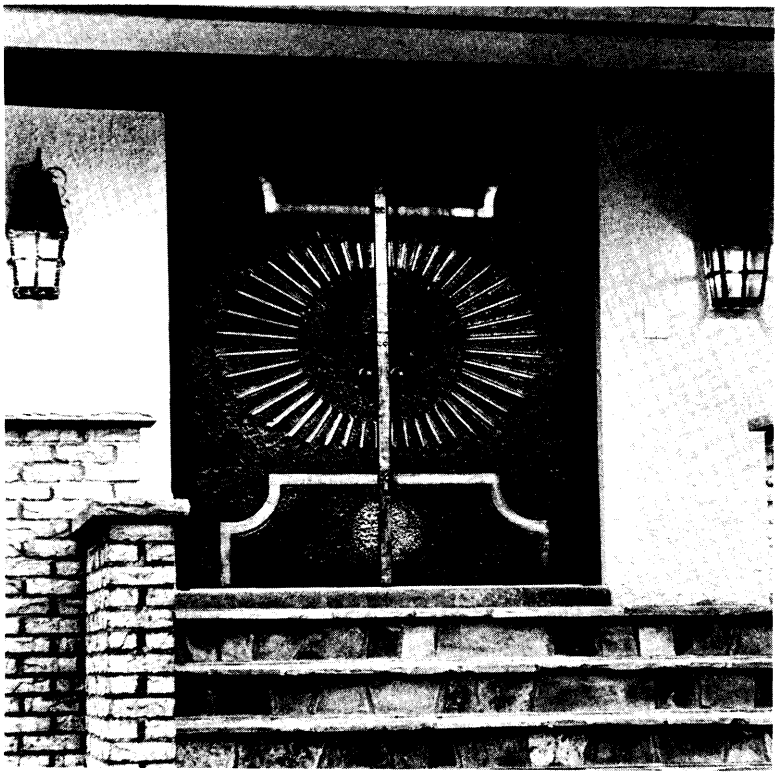
"We have additionally taken care to design each building aesthetically with ample visitor parking and landscaping at the front and employee parking and truck loading facilities at the rear.

"The flexibility of All-Electric design will enable us to construct future buildings which will satisfy the individual requirements of both large and small tenants."

TECO
Tampa Electric Company

# murals by laszlo buday

# buday



Reprinted from an article in The Globe and Mail, Toronto, Canada.

By Kay Kritzwiser

When Laszlo Buday gets down to work, he puts on a black skull cap, a coarse apron and a pair of 150-year-old spectacles he once picked up in Vienna for a song. Then suddenly, with a flexible strip of copper in one hand and a small hammer in the other, he becomes a symbol himself of all the artisans, craftsmen, designers, philosophers who have gone before him.

The cap, the apron, the quaint glasses are not arty props. The Budapest-born artist is all these things anyway.

The cap keeps copper dust out of his hair. The spectacles ("look at this beautiful craftsmanship," he purrs over them,) provide the right degree of magnification for his finely designed copper panels. Tap, tap, tap the hammer goes on the thin copper and that too is an ancient sound, inseparable from an ancient craft.

Buday, who darts rather than walks, is a stubborn individualist who knows what he wants. In one week recently, he flew to Karachi, summoned about a job, and then to Washington. He shrugged off both offers to work. "I didn't accept either assignment. I want to be one man. I don't want to be a factory. If I take on any more work than I can do myself, I will be a factory, not an artist."

Buday's design studio in York Square is a fascinating melange of materials -- beautiful rolls of copper, precisely arranged tools, comfortable chairs, and orderly desk and lots of books and magazines.

Buday, who is a graduate of Budapest Academy of Art, was primarily a graphics designer. He came to Canada in 1957 and for a number of years was art director for the magazine, Canadian Architect. A cover series today reveals how avant garde a graphics man he was at the time.

But the philosopher in him wanted to try something else and now he works principally as a freelance artist in copper. He has small patience with people in ruts: "You cry for Rome, you go to Rome," he said.

Buday works with a square panel of copper, which gradually accepts his patient tap-tapping with tools to bring up, on the reverse side, designs which range from figurative to abstract, from literal interpretations of mythology to concepts for contemporary living.

CONTINUED

# buday

Buday backs each hammered square with liquid metal to get maximum strength and durability. The liquid aluminum which binds the back of the panels does away with the difficulties of casting — "and the tremendous cost." Then Buday, the artist, goes to work on the surfaces, darkening, polishing, reproducing various rich patinas, and finally, sealing the completed mural with a permanent clear coat to prevent oxidation.

Sometimes he enamels the copper, but it's not his favorite method. He prefers the subtleties he can introduce with acids, what he calls "the secret sparkle. If you have it, you have it when you're born."

Buday is happy, he said, to work like a dog and frequently, he does. He has no patience with whiners: "You are a pessimist? Okay, kill yourself." And he has a deep appreciation of how badly we need our artists. "It's basic. Machines don't speak to us. That's why we need art in this bloody antagonistic world." ■

# Until

## General Environmental, the waste treatment industry was engineering sales instead of solutions.

Every black mark this industry has was earned. Most manufacturers dealing in waste treatment plants came in, got their money and got out, leaving behind inefficient equipment, installation headaches and no service back-up. In other words, they dumped your problem back into your lap.

That's no way to do business. Especially while the government is making waste treatment regulations tougher and their enforcement stricter. What you need when you have a treatment problem is a solution. And now, for the first time, you have someone who can provide it: General Environmental.

What makes us any different? Everything.

First, General Environmental is a relatively new company. So when we began, we had no vested interest in how things were done in 1960 before the ecological movement. We began, in fact, as a result of that cause.

Secondly, we knew that the entire industry could use a fresh approach. So we gathered the finest staff of sanitary engineers in our industry—bar none. They studied every treatment method ever conceived, every problem ever faced and then redesigned the wheel. The resultant innovations have rocked the industry . . . probably because many are so logical that everyone else wonders why they never thought of them.

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# BETTER BUILDINGS IN TORNADO AND HURRICANE ZONES

**Michele G. Melaragno**
**Associate Professor of Building Science**
**College of Architecture, Clemson University**
**Clemson, South Carolina**

Tornadoes and hurricanes in the United States cause a considerable amount of damage and loss of human life yearly. Unlike earthquatkes, landslides, and other natural disasters which lack an apparent periodical occurrence, tornadoes and hurricanes have an annual frequency that varies within narrow limits. Statistical data collected during a seventeen-year period (1953-1969) in the United States,[1] indicated an average number of 640 tornadoes per year, with a peak of 912 in 1967 and a lower limit of 437 in 1953. Annual averages for this period[2] include $75 millions of damage with 125 deaths for tornadoes and $500 millions of damage with 75 deaths for hurricanes. Of the two types of storms, tornadoes are the more violent because the energy involved is concentrated over a smaller area of the earth's surface.

The power in a tornado-producing thunderstorm has been calculated on the order of $10^8$ KW by some authors,[3] which can be compared to the power of atomic bombs. For instance, considering the 20 Kiloton bomb type such as those dropped on Japan in 1945 and exploded experimentally at Bikini[4] in 1946, it can be calculated that 43 bombs exploded in one hour would be needed to generate a power of the same magnitude.

Tornado energy in the form of high-speed winds produces damage in one of two ways: either as a result of the wind pressure itself and the impacts from flying debris, or by the explosive force due to the reduced pressure in the funnel-shaped vortex. Evaluation of damage along the path left by tornadoes shows that forces increase as the storm's axis is approached.

Several structural surveys conclude that building failures start at relatively low wind speeds, a fact which underlines the inadequacy of conventional construction techniques to resist wind forces in general. This is no wonder; building codes often ignore wind forces altogether for buildings under a certain height. At low wind levels, wind resistance is usually achieved by the inborn rigidity of most structures due to redundant structural members or building elements such as exterior walls, partitions, floor slabs, etc. When wind forces become higher, however, design deficiencies appear. Usually missing are torsonial strength to resist twisting couples and also proper anchorages against uplifting. The list of deficiencies is long. But the main question remains: Is it possible to find feasible solutions to improve existing structural inadquacies of present building techniques?

Up to now, all groups interested in the design of buildings have expressed a fatalistic attitude toward the destruction caused by tornadoes. Engineers, architects, builders, public officials, and consequently property owners, have assumed that the annual loss in human lives and millions of dollars are unavoidable tributes to be paid to Mother Nature. Whereas in the past such a philosophy was acceptable because of the low density of the population, particularly in the rural zones of the United States, today it can no longer be tolerated. Both the population explosion in general and the tremendous suburban expansion are the main reasons for reevaluation. Also, social progress and consequent higher standards of living demand more consideration for human life regardless of cost. Therefore, buildings should reflect these needs by offering a reasonable degree of safety and reassurance to the occupants.

An important factor which in the past denied any hope for storm-resistant structures was insufficient knowledge of the meteorological phenomenon; this led people to believe that maximum wind

CONTINUED

speeds in tornadoes were over 300 mph.[5] This figure was sufficient reason for causing skepticism among engineers regarding the practicability of tornado-resistant structures. In recent years, however, most of the researchers in the dynamics of tornadoes have lowered that estimated value to less than 200 mph. This reduction of 100 mph, i.e., of one-third of the speed, corresponds to a reduction of load on the structure of approximately 55%. Thus, it is clear that feasibility of tornado-resistant design is placed in a new light.

In the near future, drastic changes may be seen in the codes of standard practice or in building codes of tornado-prone regions. The importance of interdisciplinary cooperation in the realization of tornado protection cannot be overemphasized; engineering, meteorology, and architecture all have a contribution to make in establishing storm-resistant design criteria.

Recent feasibility studies include the work conducted at Texas Tech University[6] and other projects of individual researchers. One of these studies[7] includes the design of a typical wood-frame residential structure, strengthened by X cables and by bolted connections. The study concludes that full protection of the structure can be achieved with an additional cost of 19%, half of which is accounted for by the cost of the bolts. Similarly, other solutions should be forthcoming.

Because of the similarity of problems of earthquakes and high wind forces, there are many suggestions for tornado protection that can be borrowed from seismic design regulations. For instance, the United States could be divided into a number of zones rated in terms of probability of occurrence derived from existing data. For each zone, specific loading conditions could be assigned; inclusion of these requirements in local building codes would guarantee enforcement. Codes could also contain specific building details in order to cover small residential structures that in most cases do not require the services of architects or engineers. Buildings could be classified according to their occupancy in different categories with different degrees of protection. The inclusion of a high level safety area to be used as a shelter for the inhabitants of each building could also be required.

Residential buildings, in particular, require special attention because of the long duration of occupancy and the frailty of the structures. Usually, dwellings consist of wooden frames with various cladding materials. The inherent fragility of the material and methods of connection, in addition to the deficiency of an empirical design, cannot be accepted without some radical change in the whole design concept. A previous study of the author analyzes the possibility of a concrete core monolithic with the foundation of the building, which constitutes an integral part of the living area of the dwelling for the purpose of shelter and lateral support for the wood frame around it.[8]

Just as, decades ago, earthquake forces have imposed special design regulations on a world-wide basis, in the same way forces generated by tornadoes and hurricanes, which occur even more frequently, should receive proportional attention. On the other hand, regardless of whether storm proofing regulations will be enforced or not through official codes, their neglect will be a serious omission in the design of new buildings. Residential structures in particular, either single dwellings or apartment buildings, can be come obsolete on the economy market if modern needs are not recognized. ■

[1] U.W. Department of Commerce, Natl Oceanic and Atmospheric Admin./Natl Weather Service. NOAA/PI 70014 1970. Severe Local Storm Warning Service.

[2] From: Environment Data Service, ESSA.

[3] Vonnegut, B. and J.R. Weyer. Luminous Phenomena in Nocturnal Tornadoes. Science, Sept. 1966, pp. 1213-1220.

[4] The Effects of Nuclear Weapons. Prepared by the Dept. of Defense, published by U.S. Atomic Energy Commission, April 1962.

[5] For a more complete presentation of wind speed values, see: Melaragno, Michele G., Tornado Forces and Their Effects on Buildings. Kansas State Univ., Manhattan, Kansas, 51 pp., 1968.

[6] The Department of Civil Engineering at Texas Tech. University initiated a tornado research program following the Lubbock storm of May 11, 1970. Some of the studies are:
McDonald, J.R., Structural Response of a Twenty-Story Building to the Lubbock Tornado. Dept. Civil Eng., Texas Tech. University, 37 pp., October 1970.
Mehta, K.C., J.R. McDonald, J.E. Minor, A.J. Sanger. Response of Structural Systems to the Lubbock Storm. Dept. Civil Eng., Texas Tech. University, 427 pp., October 1971.
Minor, R.R. and A.J. Sanger. Observations of the Response of Metal Building Systems to the Lubbock Tornado. Texas Tech. University, Storm Research Report 02, 110 pp., February 1970.

[7] Sherman, Zachary. Residential Buildings Engineered to Resist Tornadoes and Hurricanes. Paper presented at the XXII International Astronautical Congress in Brussels, Belgium, Sept. 20-25, 1971.

[8] Melaragno, M.G. Dwelling Structures for the Great Plains. The Semester Review, Clemson University, September 1972.

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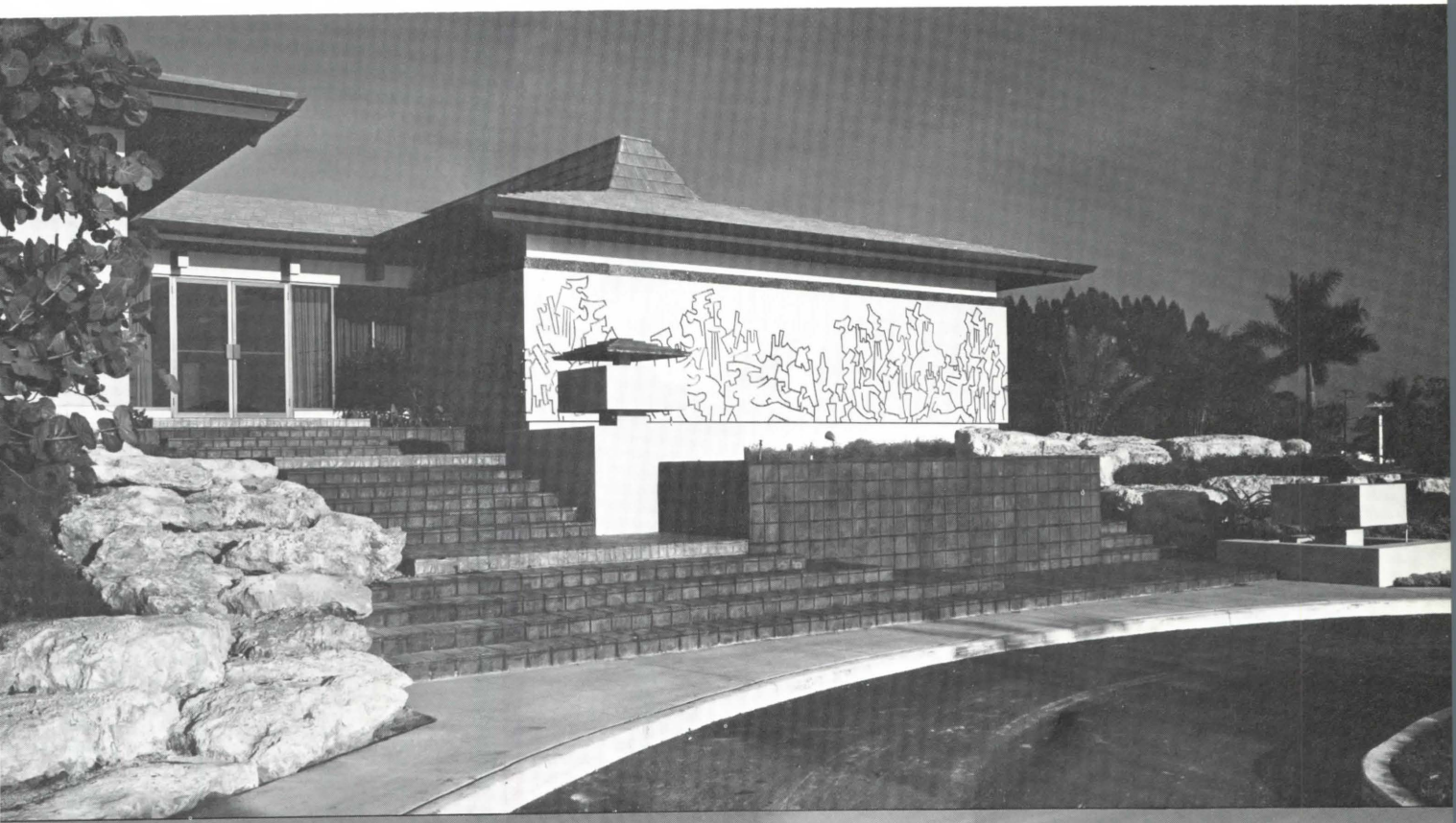
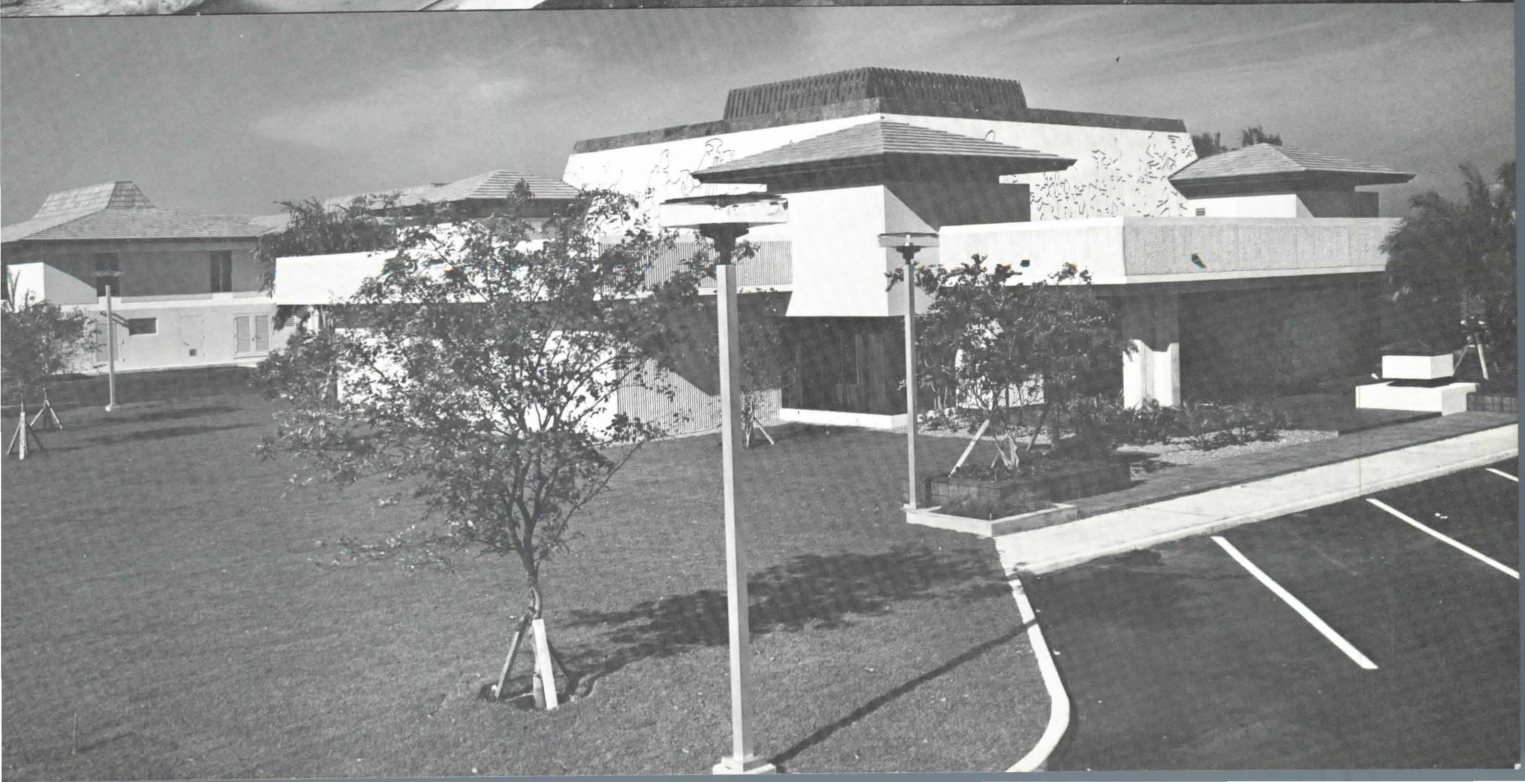
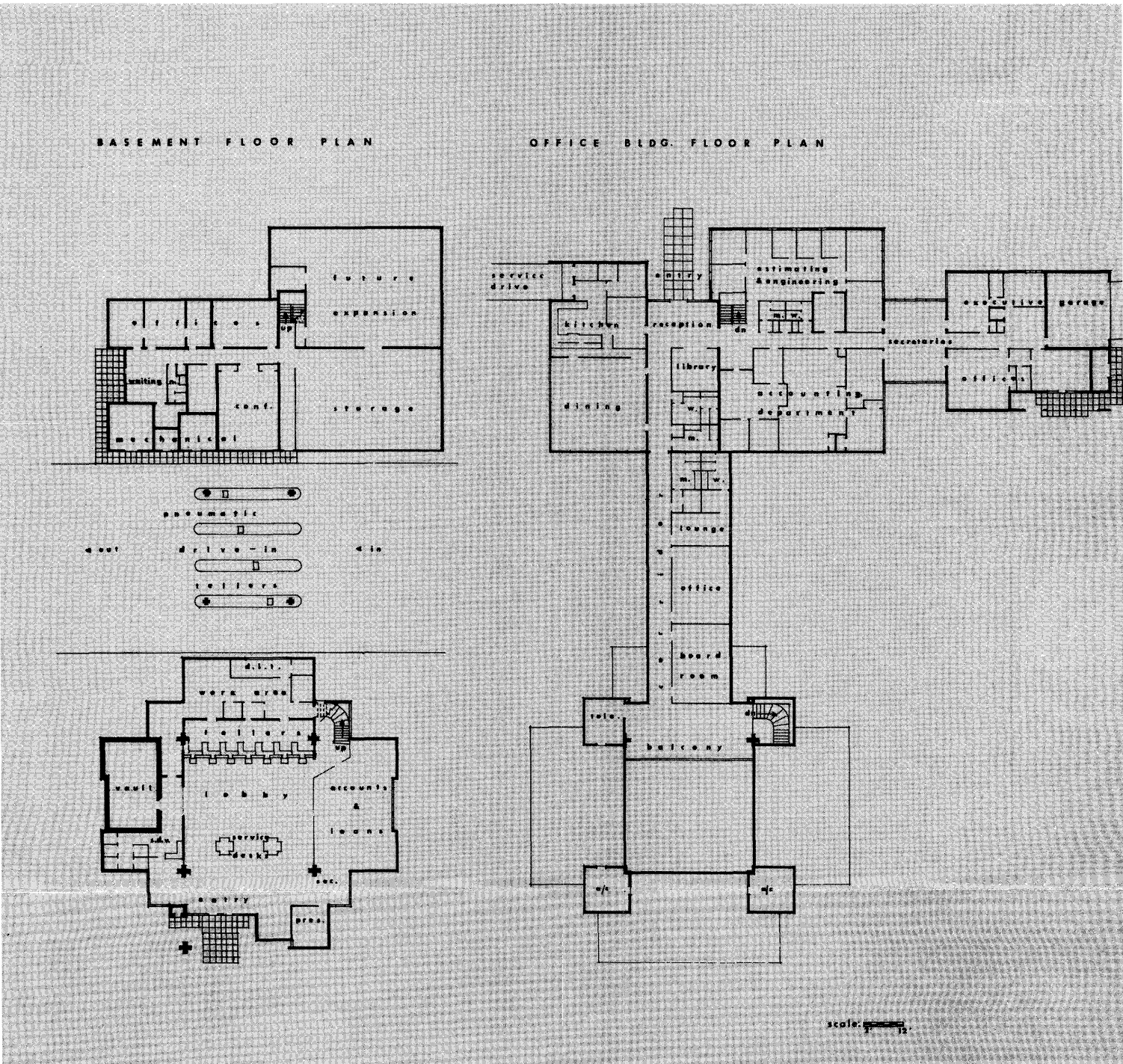
# MIAMI LAKES FIRST STATE BANK

PHOTOS: WRAY STUDIO





# MIAMI LAKES FIRST STATE BANK




FA/24

PROGRAM:

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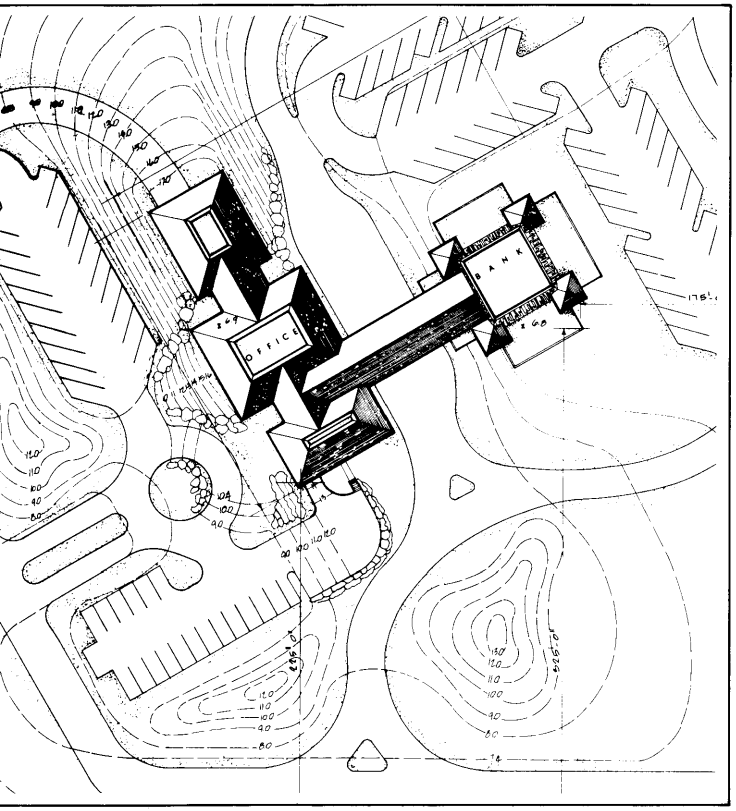


# Letter

Mr. Frank B. Maher
President
John Hancock Insurance Company
Boston, Massachusetts 02100

Dear Sir:

When recently in the press I noticed a piece about breaking glass panes under apparent 'less than design' wind loads, I was reminded of an occasion after Hurricane "Donna", 1960.

With other building professionals, having rather carefully studied some of the results of this rather impirical "field experience" (180 mph), we became more than ever convinced that existing wind force effects data were out of date and inadequate, and that "something should be done".

Briefest study suggested that such research should be deeper than that generated by semi-captive laboratories on the orders of product manufacturers.

It seemed logical that the whole spectrum should be involved-design professions, underwriters, bankers, manufacturers, the people, and government at various levels-in a coordinated continuing program to search for valid performance criteria.

We tried to set some wheels in motion at various local and national levels, but were only minimally successful. I particularly remember the comment of the Underwriter's representative for the Miami area: "Mr. Hansen, the Underwriters wrote the building code, and when they see fit to change it, they will".

Constantly raised is the position that if standards were established at higher values, no one could afford to build. Our personal study suggests this is not true for many facets.

Constantly raised is the position that if standards were established at higher values, no one could afford to build. Our personal study suggests this is not true for many facets.

With recurrent "Donna's" in mind, for a significant project, we privately tested 1/4" x 8' x 10' panels of tempered glass, in plane and warped vacuum frames, to determine in rough fashion that such panels might withstand expectable 200 mph loads without shattering, However, it was noted that "pillow" effect was such that all then available keeping systems were judged ineffective at higher wind loads, and most seemed likely to contribute to breakage under those conditions.

With this knowledge, we were able to design a simple but hopefully effective glass keeping system with positive grab and about twice normal purchase. (No wind rigs have been available here for full scale tests at forces much above 120 or 130 mph.)

For added stiffness and safety we used 3/8" glass, which proved not to be a serious overburden in quantity purchases. (No insurance credit, however.)

More recently, we have had painful occasion to evaluate major laboratory test procedures for wind uplift forces on roofing materials and insulation (early 60's) and smoke and flame tests for fiberboard, (late 60's) and revealed them poorly founded and quite unreliable.

Such experiences expose underwriters' divided loyality (often having to argue both sides of the same question, and "pay off as cheap as you can regardless of fault.)" It exacerbates problems of basic responsibility to everyone's detriment (with increasing regularity and without concomitant recompense, especially the designers').

With constant development of building technology, new problems are escalating to a shattering pitch.

No single design force can generate the time or resources to completely test all materials in a building for all possible circumstances, or evaluate all the tests made by others; yet "ignorance" of a most obscure and most obtuse problem has been ruled "no defense" in some courts.

The point of this harangue is to prey upon your present painful experience to help generate impetus for a truly multi-supported national building research system and meeting ground for afterlock evaluations.

I expect to be in the Boston area sometime in the near future and would appreciate the opportunity to survey the glass installation in the new Hancock Building for quite personal evaluation and use in the light of previous observation and experience.

Sincerely,
Robert E. Hansen, faia
Architect

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# "Why hire an architect if all I need is four walls and a roof?"

"It's not a big project," the argument goes. "So let's not make it any more complicated than it has to be..."

With these words, architects are shut out from the job they do best.

## Architects are trained un-complicators.

Architects are simplifiers, trained to help you separate what you truly need from what you think you need.

Together, you and your architect make discoveries you might never make by yourself.

You may discover (as a North Carolina bank did) that 4 walls are one wall too many.

You may discover (as a Kentucky company did) that those two buildings you're assuming you need should really be one building.

Or you might find that that steep (and cheap) site is actually better suited to your building's function than that flat (and costly) one.

## Architects are assumption-busters.

Walls, sites, materials, "inevitable" costs and delays—all of your assumptions about traditional construction come under attack.

And as you collaborate, you may find your assumptions about architects (that they're slow, or spendthrifts, or impractical dreamers) being shattered, too.

In the meantime, it would be good if you could talk to some businessmen who've been through the experience.

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